

Eilema marcida (Mann, 1859) – A new species for Malta with remarks on the other members of Maltese Lithosiinae (Arctiidae)

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Abstract. *Eilema marcida* (Mann, 1859) is recorded for the first time from Malta. Specimens belonging to this taxon were originally determined as *Eilema pygmaeola* Doubleday which does not belong to the lepidoptero fauna of Malta. Some biological and faunistic data on *E. marcida* and *Eilema caniola* are provided. Information on all the three species of Maltese Lithosiinae is summarized.

Introduction

The Maltese Islands are a group of small, low-lying islands situated almost at the centre of the Mediterranean, from 35°48'28" to 36°0'0"N and 14°11'04" to 14°34'37"E. They are 92 km south of Sicily and 252 km north of the Libyan coast. The total area of the archipelago is 320 km². The Maltese archipelago is composed of three inhabited islands, Malta, Gozo and Comino and a number of smaller, uninhabited islets and rocks. From the ecological point of view, the most important of these are Cominotto, Filfa, St. Paul's Island and Fungus rock. Malta is the main island. The highest point is at Dingli, on the west side of Malta and is 253 m above sea level. Lakes and rivers are lacking and only a few permanent freshwater springs are to be found.

The Maltese climate is typically Mediterranean, with mild, wet winters and hot, dry summers. Annual rainfall is variable and the average for the last forty years is about 500 mm. Most of the rain falls between October and March and the period between April and September constitutes the dry season. The mean temperature for the last 45 years was 18.7° C. The average for February, the coldest month is 12.36° C, while that for August, the hottest month is 26.39° C. Snow never falls. Relative humidity is generally high (65–80%) all the year round. Windy conditions are the norm. About 92% of the days of the year have a minimum of 1.85 km per hour of wind and the prevailing wind is the *mistral* or the north-westerly wind.

The natural vegetation of the Maltese Islands is dominated by the Mediterranean scrub communities of which the best representatives are the various types of garigue, typical of rocky ground and characterized by such species as *Thymbra capitata* (L.) Cav., *Anthyllis hermanniae* L., *Teucrium fruticans* L., *Erica multiflora* L., and the endemic *Euphorbia melitensis* Parl., (Lanfranco 1995). Garigue ecosystems, such as found at Ras il-Pellegrin, il-Kortin tal-Mellieħa and Ta' Ċenċ in Gozo, make up to about 10% of the natural environment (Lanfranco 2002). In favoured situations, such as under cliff faces, scrub community occurs as maquis, with *Ceratonia siliqua* L., *Olea europaea* L., *Pistacia lentiscus* L., *Rhamnus oleoides* (L.), *Teucrium flavum* L., *Prasium majus* L., *Lonicera implexa* Ait., *Smilax aspera* L., *Acanthus mollis* L., *Capparis orientalis* Du-

mahel, and others (Lanfranco 1995). Less than 3% of the natural environment is of this type (Lanfranco 2002).

No natural woods occur, although remnants of a few *Quercus ilex* woods, such as found at Buskett, near Dingli, at Wardija and Mellieħa still remain or are reduced to maquis. The semi-artificial woodland at Buskett is fairly characteristic of a Mediterranean evergreen wood (Lanfranco 1995). Wooded areas account to only 1.4% of the natural environment (Lanfranco 2002).

Freshwater habitats are scarce in Malta, especially during the summer months. Permanent streams, such as at Wied il-Luq in Buskett, Wied tal-Bahrija in Bahrija and Wied il-Lunzjata in Gozo are dominated by plant communities comprising *Arundo donax* L., *Cyperus longus* L., *Holoschoenus vulgaris* Link., *Populus albus* L., *Salix pedicellata* Desf., *Ulmus canescens* Melville, sometimes accompanied by *Laurus nobilis* L.

Dune communities are also very rare and are largely degraded. These are characterized by species belonging to *Salicornia*, *Suaeda*, *Crithmum*, *Limonium*, *Phragmites australis* (Cav.) Trin. ex Steudel, *Juncus acutus* L., *Pancreatium maritimum* L., *Euphorbia*, *Salsola*, *Medicago*, and others (Lanfranco 1995). Dune areas still exist at Ghadira Bay and Rdum il-Ħmar in Mellieħa, at Armier Bay and Ramla in Gozo. The botanical nomenclature follows Weber & Kendzior (2006)

Material and methods

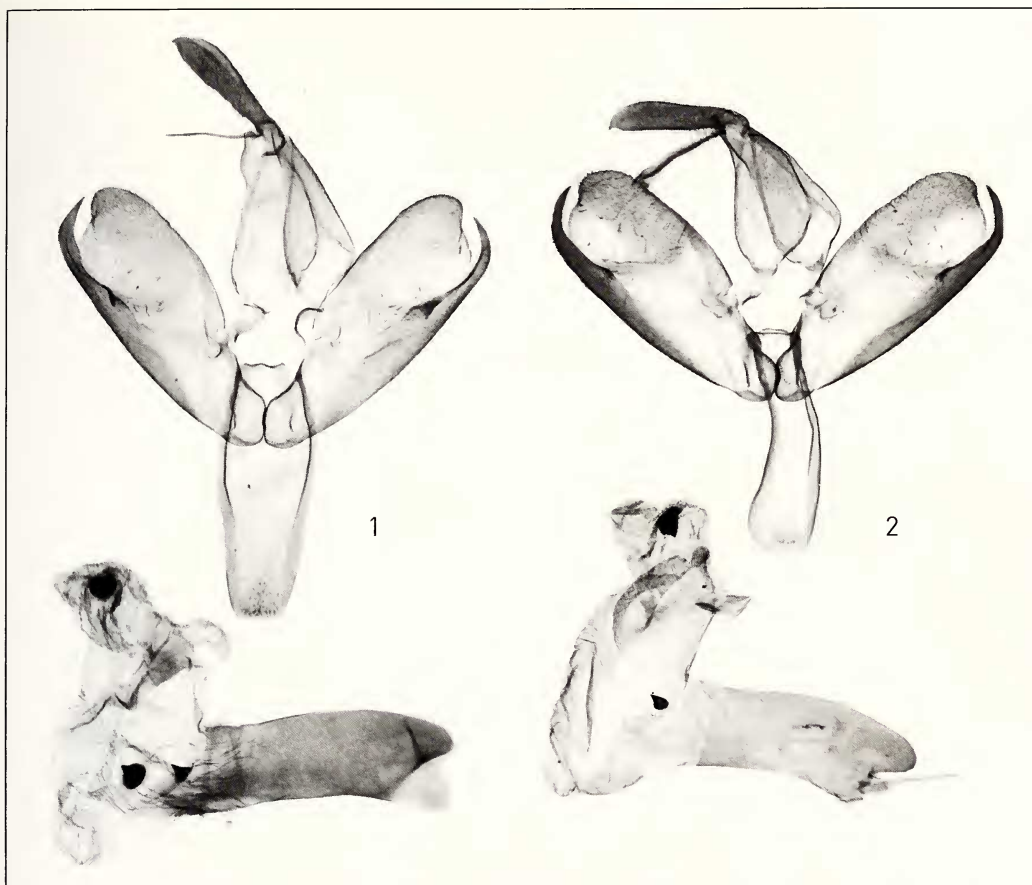
The moths were collected at light, either using moth traps running throughout the night with 18W Actinic light, or at light against a white sheet, using 250W mixed MV and UV light run on a portable 1000W generator for about three hours, mostly on moonless nights. Moths from the light traps were retrieved in the morning while those attracted to white sheets were handpicked when they settled on the sheet. All collecting sites, except Rabat and Naxxar which are in built up areas, are open countryside and away from human habitations. They are mostly garigue and maquis habitats with small groves of *Pinus halepensis* Mill. and *Ceratonia siliqua* L. It is not uncommon to find dead branches of these trees completely covered with lichens of the genus *Ramalina*. Although in Malta the actual larval host plants for none of the Lithosiinae species have been established, it is not impossible that such lichens form the diet of the larvae of *Eilema* species.

Results

Eilema marcida (Mann, 1859)

Figs 1–2, 20–38, 41

Material. Malta, Rabat, 35°52'35"N, 14°23'44"E, 3♂, 12.vi.[19]83, 20.viii.[19]83, 23.ix.[19]84, 2♀, 4.vi.[19]84, 10/17.v.2006, leg. Sammut. Rabat, Dwejra 35°54'15"N 14°22'33"E, 5♀, 12., 27.vii., 27.viii.2007, leg. Sammut; 1♂, 2♀, 12.v.2007, leg. A. & K. Seguna. Rabat, Fort Bingemma, 35°54'85.3"N 14°22'33.0"E, 2♂, 6♀, 27.v.2006, leg. A. & E. Seguna. Naxxar, 35°54'35"N 14°26'29"E, 108 m, 1♂, 2♀, 19., 23., 30.v.2006, leg. A. Seguna. San Pawl il-Bahar, Wied tal-Mistra, 35°57'32"N 14°23'42"E, 1♂, 1.vi. [19]85, leg. A. Seguna; Mtahleb, 35°52'30"N 14°20'32"E, 1♂, 15.v.[19]85, leg. P. Sammut.



Figs 1–2. Male genitalia of *E. marcida* (Mann) with everted vesica. **1.** Vesica with 3 cornuti, Rabat, 12.vi.83. **2.** vesica with 2 cornuti, Rabat, Fort Bingemma, 35°54'85.3"N 14°22'33.0"E, 27.v.2006.

Distribution. Northwest Africa (Morocco, Tunisia), south Spain, France (only Corsica), central and south Italy, Sardinia and Sicily.

Remarks. *E. marcida* was for a long time confused with *Eilema pygmaeola* (Double-day, 1847) and treated as a synonym of subspecies *E. pygmaeola pallifrons* (Zeller, 1847). Recently Grassi & Zilli (2005) confirmed its species level status on the base of examination of male and female genitalia. This opinion is also followed by later authors (Gastón, Macià & Ylla 2007; Leraut 2006). From the Maltese Islands only *E. pygmaeola pallifrons* has been recorded until now. However the specimens sent for the examination to the first author belong undoubtedly to *E. marcida*. Further examination of additional material including the specimen being the first “*E. pygmaeola pallifrons*” recorded from Malta revealed all known specimens to be *E. marcida*. The misidentification is caused by the fact that when the specimen was collected, the taxon *E. marcida* was widely accepted as only a synonym of *E. pygmaeola pallifrons*.

As a result of the present study, *E. pygmaeola pallifrons* (Zeller, 1847) should be excluded from the list of Maltese Lepidoptera.

Analyzed material indicates that on Malta the species produces two generations per year. Moths of the spring generation (f.g.) fly for a much shorter time than these of the summer generation (s.g.) with about one month gap from the mid-June until the mid-July. The first generation flies in May (first 12.v.) and June (last 12.vi.). The second generation lasts from July (first 12.vii) until September (last 23.ix.). Moths of the first generation (Figs 20–31) are significantly larger compared to the representatives of the second generation (Figs 32–38). Forewing length of males (7 examined) belonging to f.g. varies between 11–12 mm (on average 11,5 mm) while those of s.g. (2 examined) varies between 8–9 mm (on average 8.5 mm). In females, forewing length of f.g. (12 examined) varies between 10–12 mm (on average 10 mm) while those of s.g. (5 examined) is about 9 mm. The colouration of moths from the s.g. is also significantly paler and more homogenous with usually much less distinct dark suffusion of outer portion of hind wing especially in the males.

The occurrence of two generations is also reported from Italy (Parenzan 1982) where, in contrast to Malta, “in the more southern districts” the species shows “two largely overlapping generations in early summer and late summer-early autumn” (Grassi & Zilli 2005).

During the study 11 specimens (4♂, 7♀), belonging to the first (2♂, 4♀) and the second (2♂, 3♀) generation were dissected. Among the dissected males there is one specimen with only 2 cornuti in the vesica (Fig. 2). The middle cornutus is absent. The remaining two retain the position and shape typical for the species (Fig. 1). This feature was, without any details, already noted by Grassi & Zilli (2005), although it was never illustrated.

Eilema caniola (Hübner, 1808)

Figs 3–19, 41

Material. **Malta**, Rabat, 35°52'35"N 14°23'44"E, 1♂, 7.iv.2006, 1♂, 27.iv.2002, 1♀, 27.iv.2005, 1♀, 30.v.[19]83, 1♀, viii.[19]81, 3♀, 5.x.[19]84, 1♀, 29.x.[19]73, 1♀, 4.xi.[19]80, 1♀, 7.xi.[19]80, 2♀, 6.x.[19]86, leg. P. Sammut; Rabat, Dwejra, 35°54'15"N 14°22'33"E, 1♀, 28.vii.2008, leg. P. Sammut; Dingli, Dingli Cliffs, 35°51'20"N 14°22'33"E, 3♀, 4.x.2004, leg. A. Seguna; Naxxar, 35°54'35"N 14°26'29"E, 108 m, 1♂, 14.v.2007, 1♀, 1.v.[19]97, leg. A. Seguna; Mosta, Bidnija, 35°55'32"N 14°24'08"E, 1♂, 2♀, 2.v.[19]97, leg. A. Seguna; Burmarrad, Ghajn Rihana, 35°55'27"N 14°24'57"E, 2♂, 1♀, 18.x.[19]91, leg. P. Sammut; Burmarrad, Wied Qannotta, 35°56'09"N, 14°24'14"E, 1♀, 22.iv.2002, leg. P. Sammut; Mellieħa, Mġiebaħ, 35°58'05"N 14°22'56"E, 1♀, 8.x.2004, leg. A. Seguna; Mellieħa, L-Ahrax tal-Mellieħa, 35°59'15"N 14°22'28"E, 1♀, 14.ix.2007, leg. A. Seguna; Buskett, 35°51'27"N 14°23'56"E, 1♀, 6.vii.2004, leg. P. Sammut; Baħrija, Wied tal-Baħrija, 35°53'40"N 14°20'21"E, 1♀, 5.viii.2003, leg. P. Sammut.

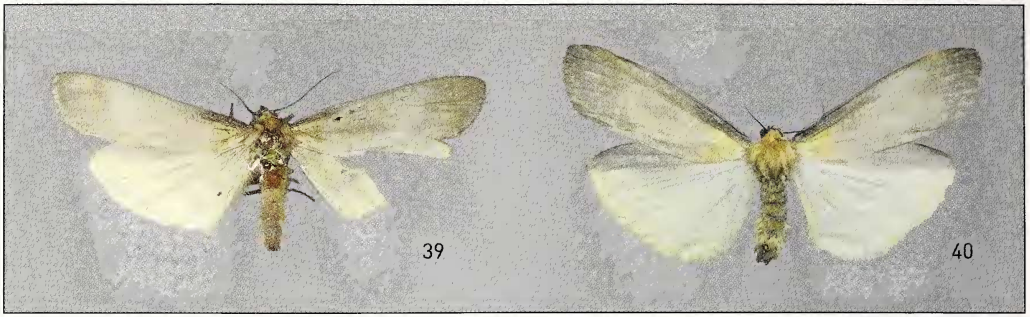
Distribution. West Palaearctic. West and South Europe north to the south of Ireland, western part of North Africa, Asia Minor and the Caucasus. Known also from Sicily (de Freina & Witt 1987). Recorded from Malta for the first time by A. Valletta (1973).

Remarks. The species is common on the island and has been collected in many places. Imagoes can be found in two periods. The first generation (Figs 3–11) is on the wing during April and May while the second generation (or the overlapping second and third generation) flies during July and the beginning of November (Figs 12–19).



Figs 3–19. Uppersides of *E. caniola* (Hübner). 3–11. First generation; 3–6. ♂, 7–11. ♀. 12–19. Second generation; 12–13. ♂; 14–19. ♀.

Figs 20–38. Uppersides of *E. marcida* (Mann). 20–31. First generation; 20–24. ♂; 25–31. ♀. 32–38. Second generation; 32–33. ♂; 34–38. ♀.



Figs 39–40. Uppersides of males of *L. quadra* (Linnaeus). **39.** Mellieħa, 3.viii.1976 **40.** Naxxar, 11.xi.1996.

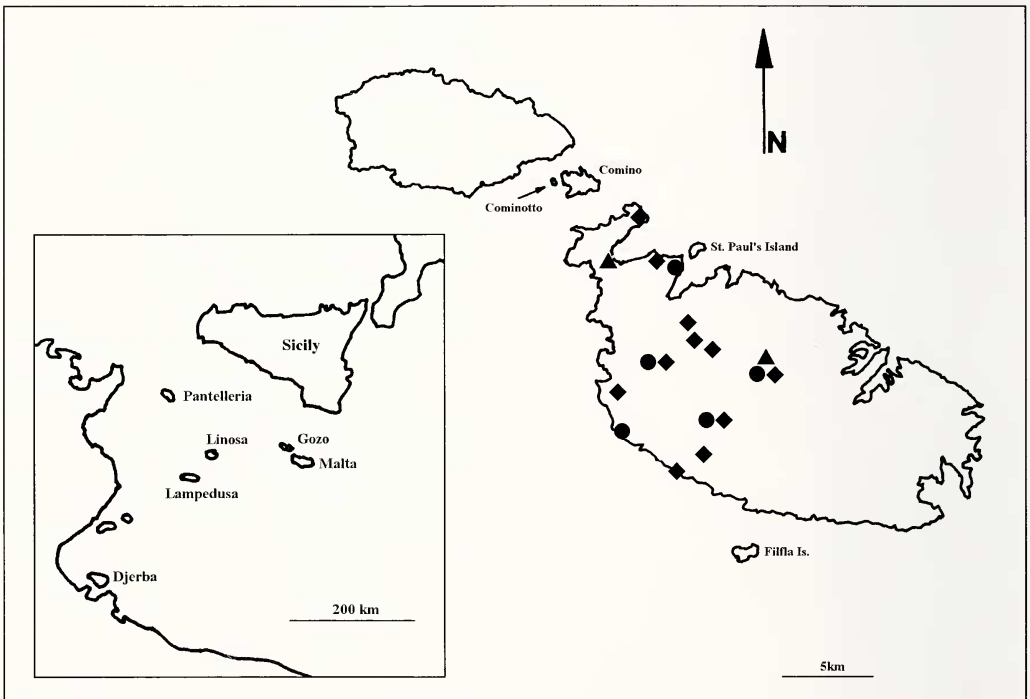


Fig. 41. Map of Maltese Archipelago showing distribution records. ● *E. marcida* (Mann), ◆ *E. caniola* (Hübner), ▲ *L. quadra* (Linnaeus).

Lithosia quadra (Linnaeus, 1758)

Figs 39–41

Material. **Malta**, Mellieħa, Ghadira Bay, 35°58'14"N, 14°20'57"E, 1♂, 3.viii.1976, L. Cassar leg; Naxxar, 35°54'35"N 14°26'29"E, 1♂, 11.xi.1996, A. Seguna leg.

Distribution. Palearctic. From Western Europe to Japan. Absent in North Africa. On Sicily recorded only recently from Saracena, Scagliola (Giuliano & Parenzan 1994), Portella Arena (Bella, Russo & Parenzan 1995) and Galvarina (Parenzan & Porcelli 2006).

Remarks. This very characteristic species was collected on Malta for the first time by L. Cassar (Sammut 1984). Until now only 2 specimens are known. This fact, and the fact that the second specimen has been collected more than 20 years after the first, strongly suggest that they have reached the Maltese Islands during some occasional migration and as yet, have failed to establish permanent population.

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